

## CLAIMS

1. An electroluminescent (EL) display device comprising an array of display pixels (1), each display pixel comprising an EL display element (2) and  
5 a current source circuit (20) for driving a current through the EL display element in dependence on a data voltage, wherein the display device is operable in at least first and second phases (30,32) within each frame period:  
the first phase (30) having a first duration and during which a first one of a first plurality (31) of analogue drive currents can be driven through the EL  
10 display element; and  
the second phase (32) having a second duration, different to the first duration, and during which a second one of a second plurality (33) of analogue drive currents can be driven through EL display element, wherein the first and second ones of the respective pluralities of analogue drive currents are  
15 independently selectable.
2. A device as claimed in claim 1, wherein the first plurality of analogue drive currents comprises a number  $n$  of drive current levels including zero, and wherein the duration of one phase is approximately  $n$  times the duration of the  
20 other phase.
3. A device as claimed in claim 2, wherein  $n$  is 8.
4. A device as claimed in any preceding claim, wherein the first plurality  
25 (31) of analogue drive currents is the same as the second plurality (33) of analogue drive currents.
5. A device as claimed in any one of claims 1 to 3, wherein the first  
30 plurality (31) of analogue drive currents comprises a first number  $n$  of drive current levels for providing the lowest  $n$  non-zero brightness levels, and the second plurality of analogue drive currents comprises a second number  $m$  of

non-zero drive current levels (34) for providing the highest m brightness levels, where  $n+m$  is the total number of brightness levels.

6. A device as claimed in any preceding claim, wherein each pixel  
5 comprises a drive transistor (22), a storage capacitor (24) for storing a gate voltage of the drive transistor (22) and an address transistor (16) for switching a data voltage to the gate of the drive transistor (22) during an addressing phase.
- 10 7. A portable electronic device (40) comprising a display device as claimed in any preceding claim.
8. A method of driving an electroluminescent (EL) display device comprising an array of display pixels, each display pixel comprising an EL  
15 display element (2) and a current source circuit (20) for driving a current through the EL display voltage in dependence on a data voltage, the method comprising:
- in a first phase (30) having a first duration, driving a first one of a first plurality (31) of analogue drive currents through EL display element; and  
20 in a second phase (32) having a second duration, different to the first duration, driving a second one of a second plurality (33) of analogue drive currents through EL display element, wherein the first and second ones of the plurality of analogue drive currents are selected to provide a desired combined EL display element output.
- 25 9. A method as claimed in claim 8, wherein the plurality of analogue drive levels comprises a number  $n$  of drive levels, and wherein the duration of one phase is approximately  $n$  times the duration of the other phase.
- 30 10. A method as claimed in claim 9, wherein  $n$  is 8.

11. A method as claimed in any one of claims 8 to 10, wherein the first plurality (31) of analogue drive currents is the same as the second plurality (33) of analogue drive currents.

- 5 12. A method as claimed in any one of claims 8 to 10, wherein the first plurality (31) of analogue drive currents comprises a first number  $n$  of non-zero drive current levels for providing the lowest  $n$  brightness levels excluding zero, and the second plurality of analogue drive currents comprises a second number  $m$  of non-zero drive current levels (34) for providing the highest  $m$
- 10 brightness levels, where  $n+m$  is the total number of non-zero brightness levels.